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Title: Tropospheric Ozone Source Attribution in Southern California during Summer 2014 Based on Lidar Measurements and Model Simulations

In the past decades, significant efforts have been made to increase tropospheric ozone long-term monitoring. A large number of ground-based, airborne and space-borne instruments are currently providing valuable data to contribute to better understand tropospheric ozone budget and variability. Nonetheless, most of these instruments provide in-situ surface and column-integrated data, whereas vertically resolved measurements are still scarce.

Besides ozonesondes and aircraft, lidar measurements have proven to be valuable tropospheric ozone profilers. Using the measurements from the tropospheric ozone differential absorption lidar (DIAL) located at the JPL Table Mountain Facility, California, and the GEOS-Chem and GEOS-5 model outputs, the impact of the North American monsoon on tropospheric ozone during summer 2014 is investigated. The influence of the Monsoon lightning-induced NO<sub>x</sub> will be evaluated against other sources (e.g. local anthropogenic emissions and the stratosphere) using also complementary data such as backward-trajectories analysis, coincident water vapor lidar measurements, and surface ozone in-situ measurements.

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